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Owner's Manual

SmartPro® Rackmount

Rackmount Intelligent Network UPS Systems (120V)

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Important Safety Instructions

SAVE THESE INSTRUCTIONS

This manual contains important instructions and warnings that should be followed during the installation, operation and storage of all Tripp Lite UPS systems. Failure to follow these warnings will void your warranty.

UPS Location Warnings

- Install your UPS indoors, away from excess moisture or heat, conductive contaminants, dust or direct sunlight.
- For best performance, keep the indoor temperature between 32° F and 104° F (between 0° C and 40° C).
- Leave adequate space around all sides of the UPS for proper ventilation.

UPS Connection Warnings

- Connect your UPS directly to a properly grounded AC power outlet. Do not plug the UPS into itself; this will damage the UPS.
- Do not modify the UPS's plug, and do not use an adapter that would eliminate the UPS's ground connection.
- Do not use extension cords between the UPS and outlet. Your warranty will be voided if anything other than Tripp Lite surge suppressors are used to connect your UPS to an outlet.
- If the UPS receives power from a motor-powered AC generator, the generator must provide clean, filtered, computer-grade output.

Equipment Connection Warning

- Do not use Tripp Lite UPS Systems for life support appliances in which a malfunction or failure of a Tripp Lite UPS System could cause failure or significantly alter the performance of a life-support device.
- Do not connect surge suppressors or extension cords to the output of your UPS. This might damage your UPS and will void both the surge suppressor and UPS warranties.

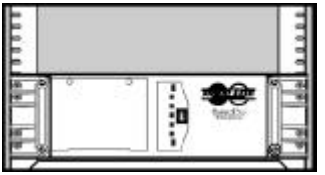
Battery Warnings

- Your UPS does not require routine maintenance. Do not open your UPS except to replace batteries. There are no user-serviceable parts inside.
- Battery replacement should be performed by qualified service personnel. Because the batteries present a risk of electrical shock and burn from high short-circuit current, service personnel should observe proper precautions. Use tools with insulated handles, remove all metal hand jewelry and when possible work with only one hand to reduce the danger of shock. Replace the existing batteries with an equal number of new batteries of the same type. Do not open the sealed lead-acid batteries. Do not short or bridge the battery terminals with any object.
- The UPS batteries are recyclable. Refer to local codes for disposal requirements or in the USA only call 1-800-SAV-LEAD (1-800-728-5323) for complete recycling information. Do not dispose of the batteries in a fire.
- The UPS contains its own energy source (battery). The output terminals may be live even when the UPS is not connected to an AC supply.
- Only connect Tripp Lite battery packs of the correct voltage to your UPS's external battery connectors.
- Do not connect or disconnect external battery packs while the UPS is operating from battery.
- Do not operate your UPS without batteries.

Installation

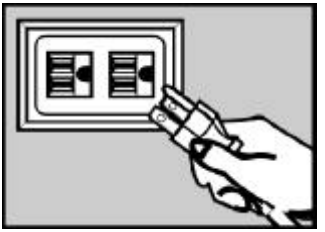
1 Install rack handles (supplied) and mount UPS in standard 19 in. rack using standard rack hardware (user supplied).

Install your UPS in the lowest rack position possible.



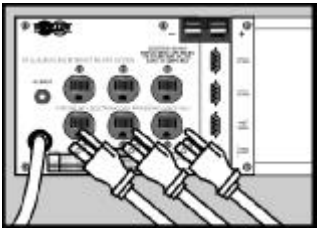
2 Plug your UPS into an electrical outlet.

See "Suggested Circuit" in Specifications section to determine if your model should occupy a 15-amp or 20- or 30-amp dedicated circuit.



3 Plug your equipment into your UPS.

Your UPS is designed to support only computer equipment. Connecting household appliances, laser printers or surge suppressors is not recommended.



4 Turn your UPS ON.

- ***Set the System Enable Switch (the location varies by model, see Figures 1 and 2) to the "ENABLE" position.***
  This switch activates the battery charger and microprocessor.

  The "⎍" light will flash until you engage the ON/Standby Switch to activate the "ON" mode.

Figure 1
System Enable Switch (700 - 1400 VA models)
Front Panel
("I" = ENABLE; "O" = DISABLE)

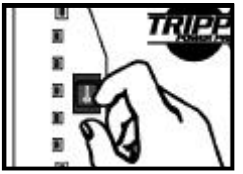
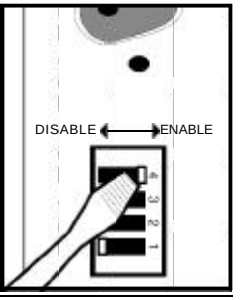
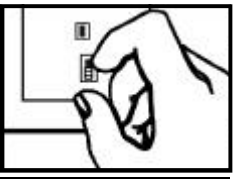


Figure 2
System Enable Switch (2200 - 3000 VA models)
Back Panel
DIP Switch #4



- ***Engage the momentary ON/Standby Switch (UPS front panel) and release it to activate the "ON" mode and supply power to the UPS receptacles.***
  (See Figure 3)

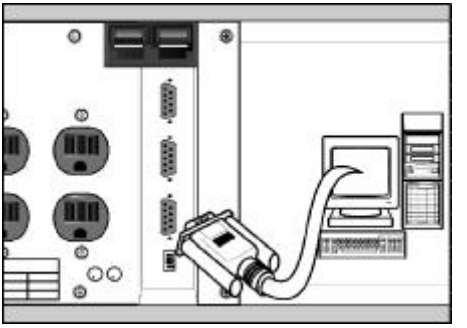
Figure 3
ON/Standby Switch (All models)
Front Panel



DB9 Port Connection (Optional) On Next Page . . .

① *DB9 Port Connection –Optional–**

Using Tripp Lite cable, connect your primary server's DB9 port to the single DB9 port labeled "SMART" (which provides complete intelligent RS-232 communications).**



② *If your UPS model has multiple DB9 ports and you have additional computers:*

All Models

Connect them to the DB9 ports labeled "BASIC" (which provide basic, contact-closure shutdown capabilities). See Figure 1.

2200 - 3000 VA Models

Set their corresponding LAN Interface DIP Switches to the ACTIVATE (LEFT) position. See Figure 2 for which switch controls which port.**

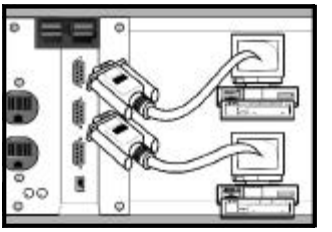


Figure 1

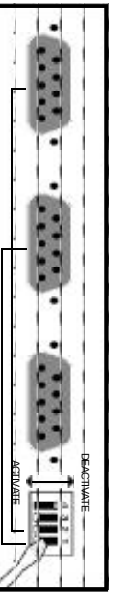


Figure 2

LAN INTERFACE DIP SWITCHES #2 & #1

(2200 - 3000 VA models)

③ *Load software and run the installation program appropriate for your operating system.*

** Serial port connections are optional. Your UPS will function properly without these connections.*

*** The "SMART" DB9 port is always enabled and is not controlled by the LAN Interface DIP Switches.*

**** If you do not connect a computer to either of the "BASIC" DB9 ports, set their corresponding LAN Interface DIP Switches to the DEACTIVATE (RIGHT) position. Note: DIP Switch #3 has no function.*

Basic Operation

Switches

*System Enable Switch**

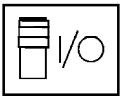
700 - 1400 VA models

2200 - 3000 VA models

This switch activates the battery charger and intelligent microprocessor. Always leave it in the "ENABLE" position when your UPS is plugged in. Set the switch to "DISABLE" only if you store or ship your UPS (to reduce battery drain).

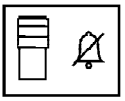
**Note: the location of the switch varies by model. The "⏍" light will flash until you engage the ON/Standby Switch to activate the "ON" mode (power ON at the UPS receptacles).*

On/Standby Switch



This momentary switch controls power to the UPS receptacles. Engage it momentarily and release it to toggle between the "ON" mode (power ON at the UPS receptacles) and "Standby" mode (power OFF at the UPS receptacles).

Mute/Test Switch



Use this momentary switch to do two things:

Silence the blackout alarm

Engage this switch and release it. Note: when the battery is nearly depleted, the alarm resumes (and cannot be silenced) to alert you to immediately shut down connected equipment.

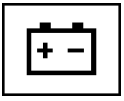
Test your UPS's battery charge

Leave your connected equipment ON. With your UPS plugged in and completely turned ON, engage this switch; hold it there for 5 seconds and release it. The UPS will momentarily switch to battery to test its charge. The " " light will turn ON and the alarm may sound if your UPS fails a self-test and/or the UPS battery is less than fully charged. Let the UPS charge for 12 hours and perform a second self-test. If the light continues to stay on, contact Tripp Lite for service. CAUTION: Do not unplug your UPS to test its batteries. This will remove safe electrical grounding and may introduce a damaging surge into your network connections.

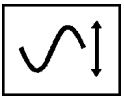
Indicator Lights

All Indicator Light descriptions apply when the UPS is plugged into a wall outlet and turned ON.

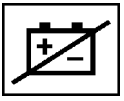
This green light will shine *constantly* to indicate AC power is available at the receptacles. It will *flash* to indicate AC power is not available. (See "System Enable Switch" and "ON/Standby Switch" descriptions above.)



This multi-colored light displays 7 separate UPS battery charge conditions. It will turn from red (low) to yellow (medium) to green (full) to show you the level of battery charge. If the light is constant, then your UPS is operating from line power and the battery is charging. If the light is flashing, then your UPS is operating from battery power and the battery is discharging. When the light flashes red, close any files you are working on and shut down your computer.



Whenever your UPS is automatically correcting high or low AC line voltage, this green light will turn ON and the UPS will gently click. The more the UPS has to correct voltage, the more the green light will turn ON and the more the UPS will click. These are both normal, automatic operations of your UPS, and no action is required on your part.

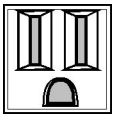


This red light will turn ON if your UPS fails a self-test and/or the UPS battery is less than fully charged. Let the UPS charge for 12 hours and perform a second self-test. If the light continues to stay on, contact Tripp Lite for service.

This multi-colored light displays 4 separate UPS load conditions. It will turn from green (low) to yellow (medium) to red (high) as you connect equipment to show you the load level your UPS is supporting. When the light is red your UPS is supporting a load above 85% of its capacity. If the red light begins flashing, your UPS is severely overloaded. Remove overload immediately until light stops flashing.

Other UPS Features

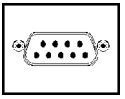
AC Receptacles



The receptacles provide your connected equipment with AC line power during normal operation and battery power during blackouts and brownouts. They also protect your equipment against damaging surges and line noise. You can remotely reboot connected equipment by turning all of the receptacles OFF and ON at once using Tripp Lite UPS software. Select models, however, feature unique "Remote Reboot Outlets" (identified on the back panel of your UPS) which allow you to use Tripp Lite UPS software to remotely reboot equipment connected to these outlets *without interrupting power to equipment connected to the other outlets*.* See software instructions for details.

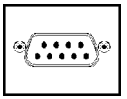
* Note: constant power is available at the Remote Reboot Outlets (and all other outlets) unless controlled through Tripp Lite UPS software.

"SMART" RS-232 Port



The RS-232 port connects your UPS to any workstation or server. Use with Tripp Lite software and #73-0743 cable to monitor and manage network power and automatically save open files and shut down equipment during a blackout. This port uses RS-232 communications to transmit UPS and power conditions (Pin 7 = Transmit; Pin 8 = Common; Pin 9 = Receive). Contact Tripp Lite Customer Support for more information and a list of available SNMP, network management and connectivity products.

"BASIC" Contact-Closure Ports

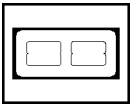


The contact-closure ports connect your UPS to any workstation or server. Use with Tripp Lite software and #73-0844 cabling to automatically save open files and shut down equipment during a blackout. This port sends contact-closure signals to indicate line-fail and low-battery status. Contact Tripp Lite Customer Support for more information.

LAN Interface DIP Switches (available on select models)

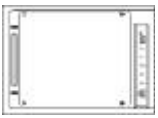
DIP Switches #1 and #2 activate or deactivate remote shutdown through the "BASIC" Contact-Closure Ports. See "DB9 Port Connection" on page 4 for which switch controls which port. Note: DIP Switch #3 has no function. DIP Switch #4 serves as the UPS's "System Enable Switch."

External Battery Connector (available on select models)



Use this to connect additional Tripp Lite battery packs for additional runtime. Refer to the label next to the connector for appropriate Tripp Lite battery pack to connect. Refer to instructions available with the battery pack for complete connection information and safety warnings.

Battery Replacement Door



Under normal conditions, the original batteries in your UPS will last several years. Battery replacement should only be performed by qualified service personnel. Refer to "Battery Warnings" in the Safety section on page 2. When replacing batteries, qualified service personnel should follow this procedure: 1) turn UPS OFF; 2) remove the battery door located on the front panel; 3) pull batteries partially out of the case; 4) make a detailed sketch of the batteries and the polarity, color and connection of all cables; 5) disconnect battery terminals; 6) dispose of used batteries; 7) reconnect replacement batteries exactly as original batteries were; 8) push batteries back into case and replace cover.*

** You may not receive full runtime until your replacement batteries have fully charged.*

Storage & Service

Storage

Turn your UPS OFF: first, engage the ON/Standby Switch and release it to place your UPS in the "Standby" mode; then set the System Enable Switch* to "DISABLE"; finally, disconnect the UPS power cord from the wall outlet. If you plan on storing your UPS for an extended period of time, recharge the UPS batteries once every three months. Follow steps #1 and #3 in the Installation section and allow the UPS to charge from 4 to 6 hours. If you leave your UPS batteries discharged for an extended period of time, they will suffer permanent loss of capacity.

** The location of the switch varies by model. See page 3.*

Service

If returning your UPS to Tripp Lite, please carefully pack the UPS using the ORIGINAL PACKING MATERIAL that came with the unit. Enclose a letter describing the symptoms of the problem. If the UPS is within the 2 year warranty period, enclose a copy of your sales receipt.

Specifications

	SMART 700 RM	SMART 1050 RM
Output Capacity (VA/Watts):	700/425	1050/705
Battery Runtime (Half Load/Full Load) Min.:	28/12	23/8
Battery Recharge Time:	2-4 hrs.	2-4 hrs.
Suggested Circuit:	15 amp	15 amp
Approvals:	UL, cUL	UL, cUL
	SMART 1400 RM	**SMART 2200 RM**
Output Capacity (VA/Watts):	1400/940	2200/1750
Battery Runtime (Half Load/Full Load) Min.:	26/10	29/13
Battery Recharge Time:	2-4 hrs.	2-4 hrs.
Suggested Circuit:	15 amp	15- or 20- amp dedicated
Approvals:	UL, cUL	UL, cUL
	SMART 2200 RM XL	**SMART 3000 RM**
Output Capacity (VA/Watts):	2200/1750	3000/2400
Battery Runtime (Half Load/Full Load) Min.:	29+/13+	23+/7+
Battery Recharge Time:	2-4 hrs.	2-4 hrs.
Suggested Circuit:	20-amp dedicated	30-amp dedicated
Approvals:	UL, cUL	UL, cUL

ALL MODELS:

Input Voltage/Frequency (120V/60 Hz); On Line Input Voltage Range (87 - 140 Volts); Voltage-Regulated Output Voltage Range (120V +/- 9%); On Battery Output Voltage Range (120V +/- 5%); Output Waveform Line Mode (filtered sinewave); Output Waveform Battery Mode (PWM sine wave); AC Surge Suppression (exceeds IEEE 587 Cat. A & B standards); AC Noise Attenuation (>40 dB); AC Protection Modes (H to N, H to G, N to G).

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